United States
Department of
Agriculture

Soil
Conservation
Service

Casper,
Wyoming

Wyoming Water Supply Outlook

Jun. 1, 1985

FOREWORD

HOW FORECASTS ARE MADE

Most of the annual streamflow in the Western United States originates as snowfall. This snowfall accumulates high in the mountains during winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Predictions are based on careful measurements of snow water equivalent at selected index points. Precipitation, temperature, soil moisture, and antecedent streamflow data are viewed in conjunction with snowpack data to prepare runoff forecasts. This report presents a comprehensive picture of water supply outlook conditions for areas dependent upon surface runoff. It includes selected streamflow forecasts, summarized snowpack and precipitation data, reservoir storage data, and narratives describing current conditions.

Streamflow forecasts are cooperatively generated by Soil Conservation Service and National Weather Service hydrologists. Forecasts become more accurate as more data affecting runoff becomes known. For this reason forecasts are issued that reflect three future precipitation conditions - Below Normal, Average, and Above Normal. These forecasts are termed reasonable minimum, most probable, and reasonable maximum. Actual streamflow can be expected to fall between the lower and upper forecast values eight out of ten years.

Snowpack data are obtained by using a combination of manual and automated measurement methods. Manual readings of snow depth and water equivalent are taken at locations called snow courses on a monthly or semi-monthly schedule during the winter. In addition, snow water equivalent, precipitation, temperature, and other parameters are monitored on a daily basis and transmitted via radio telemetry to central data collection facilities. Both monthly and daily data are used to project snowmelt runoff.

FOR MORE INFORMATION

Copies of Monthly Water Supply Outlock Reports and other reports may be obtained from the states listed below. Because of the limited space, snow survey measurements are not published in monthly reports. An annual snow survey data summary is published by the Soil Conservation Service for each of the western states. Historical snow survey data may be obtained at those same offices.

STATE	ADDRESS
Alaska	Room 129,2221 East Northern Lights Blvd.,Anchorage AK 99504
Arizona	Room 3008,Federal Bldg., 230 North First Ave., Phoenix AZ 85025
Colorado (New Mexico)	2490 West 26th Ave.,Denver CO 80211
Idaho	304 North 8th Street,Room 443,Boise ID 83702
Montana	10 East Babcock,Room 443,Federal Building,Bozeman MT 59715
Nevada	50 South Virginia Street,Third Floor,Reno NV 89505
Oregon	1220 Southwest 3rd Ave.,16th Floor,Portland OR 97204
Utah	4418 Federal Bldg.,125 South State St.,Salt Lake City UT 84147
Washington	360 U.S. Court House,Spokane WA 99201
Wyoming	Federal Bldg.,Room 3124,100 East 'B' St.,Casper WY 82601

In addition to state reports, a Water Supply Outlook Report for the Western United States is published by the Soil Conservation Service and National Weather Service monthly, January through May. Reports may be obtained from the Soil Conservation Service, West National Technical Center, 511 Northwest Broadway, Room 514, Portland, OR 97209.

Published by other agencies:

Water Supply Outlook Reports prepared by other agencies include - Snow Survey Branch, California Department of Water Resources, P.O. Box 388, Sacramento, CA 95802; British Columbia - The Ministry of Environment, Water Investigations Branch, Parliament Buildings, Victoria, British Columbia, V8V 1X5; Yukon Territory - Department of Indian and Northern Affairs, Northern Operations Branch, 200 Range Road, Whitehorse, Yukon Territory, Y1A 3V1, Alberta, Saskatchewan, and N.W.T. - The Water Survey of Canada, Inland Waters Branch, 110-12 Avenue S.W., Calgary, Alberta, T3C 1A6.

Wyoming
Water Supply Outlook

AND

FEDERAL - STATE - PRIVATE
COOPERATIVE SNOW SURVEYS

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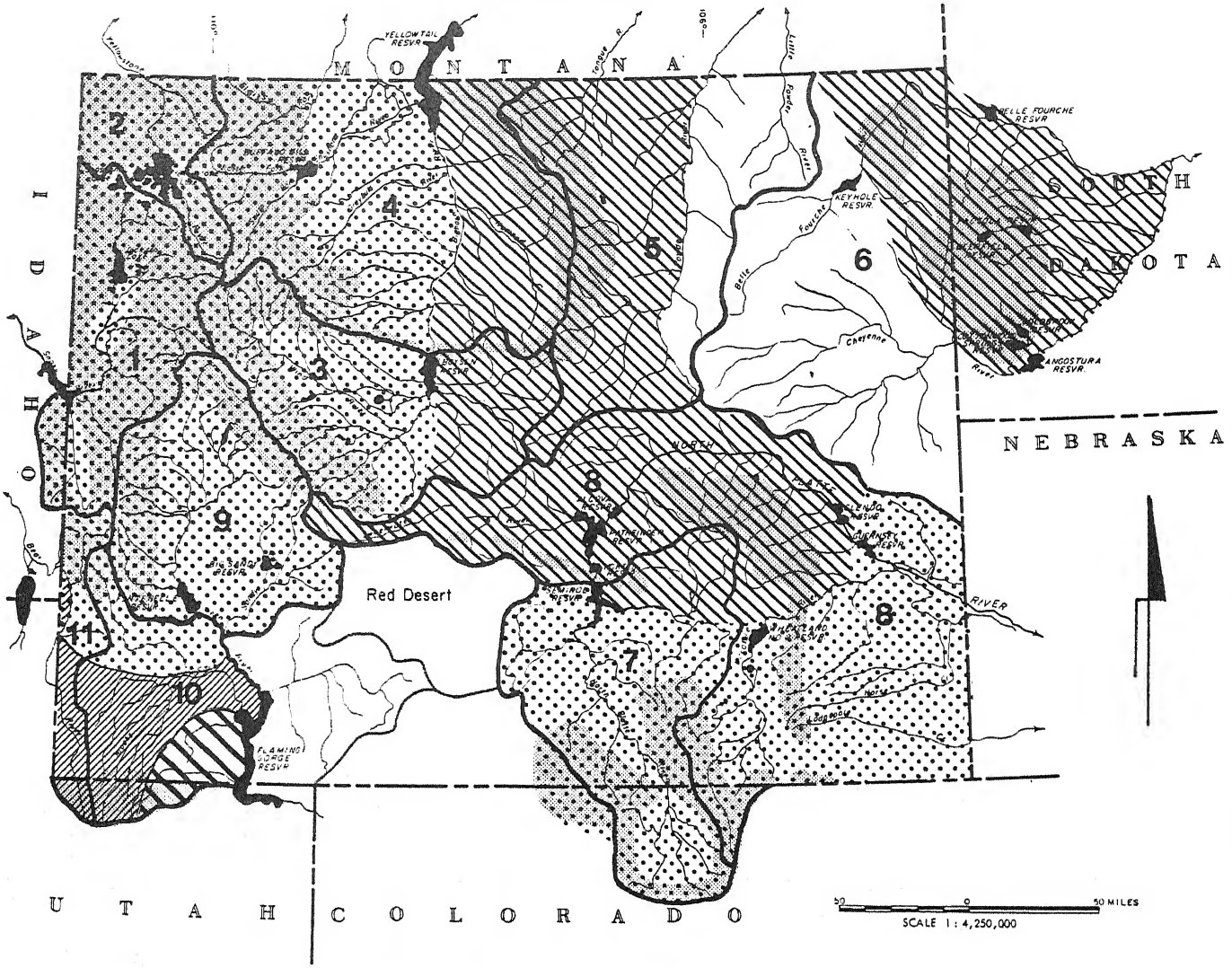
STREAMFLOW PROSPECTS FOR WYOMING

Spring and Summer Period

Jun. 1, 1985



LEGEND

1. Snake River Basin
2. Upper Yellowstone and Madison River Basins
3. Wind River Basin
4. Bighorn River Basin
5. Powder and Tongue River Basins
6. Belle Fourche and Cheyenne River Basins
7. Upper North Platte and Little Snake River Basins
8. Lower North Platte, Sweetwater, and Laramie River Basins
9. Upper Green River Basin
10. Lower Green River Basin
11. Upper Bear River Basin

>130%	Much Above Average
110%-130%	Above Average
90%-110%	Near Average
70%-90%	Below Average
<70%	Much Below Average
	Not Forecast

GENERAL OUTLOOK

STREAMFLOWS PEAKING 2 TO 4 WEEKS EARLY THIS YEAR MEAN SHORTAGES FOR MANY WYOMING WATER USERS. SPRING PRECIPITATION CONTINUES BELOW NORMAL IN THE DROUGHTY TREND OF 1985.

SNOWPACK: Winter snowpacks are nonexistent below 9,500 feet elevation. Warm dry weather has reduced the statewide snow percentage to 44 percent below average.

PRECIPITATION: May precipitation was greater than 50 percent below normal in many areas to near normal over the mountainous terrain. The Big Horn drainage again received less than one-half normal as well as many eastern sections. A few stations did receive, however, above normal amounts, particularly in higher elevations of the Upper Platte, Little Missouri, and Tongue drainages and northeastern Wyoming.

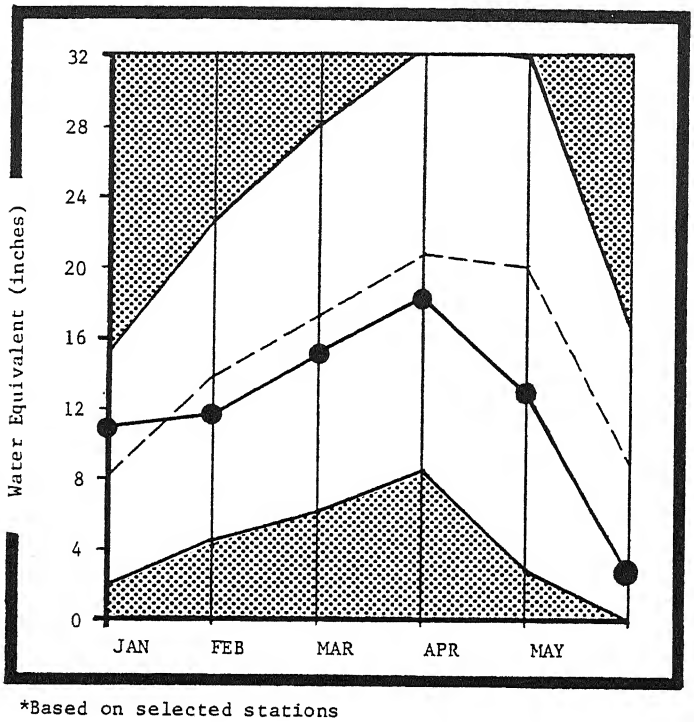
May recordings caused seasonal comparisons to continue to fall. These statistics follow the March and April trend. The western sections of the Big Horn and Wind River drainages are very dry (50 to 70 percent below normal). The Yellowstone, Snake, Niobrara, and Lower North Platte drainages are 25 percent below to near normal. Elsewhere, seasonal comparisons ranged 25 percent to 50 percent below normal.

RESERVOIR STORAGE: Major reservoirs in Wyoming are all storing above average amounts, except for Fontenelle and Jackson Lake, which are presently restricted in capacity, and Keyhole. Seminoe is highest with over twice usual June 1 volume. Small stockwater reservoirs are generally short on water.

STREAMFLOW FORECASTS: The outlook for mountain watershed runoff has not improved with continuing less than average precipitation through May. Volume forecasts of streamflows remain unchanged from the May 1 report. The warm dry weather has caused a major shift in usual runoff distribution. For example, the North Platte at Seminoe has experienced peak flow in early May (4 weeks early). This is generally true across the state with the west side streams peaking at 2 to 3 weeks early. This unusual runoff has in many cases exceeded the average flow volumes of April and May, while seasonal totals will be less than usual. This has caused a shortage of water available now to users who divert streamflow, while others using reservoir-stored water will have good to excellent supply.

SNAKE RIVER BASIN

MOUNTAIN SNOWPACK*



*Based on selected stations

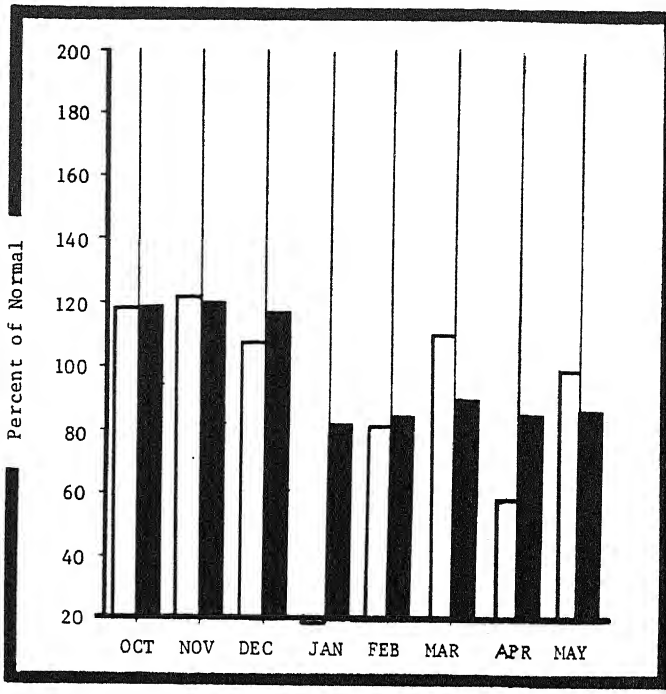
Maximum

Minimum

Average

Current

PRECIPITATION*



*Based on selected stations

Monthly precipitation

Year to date precipitation

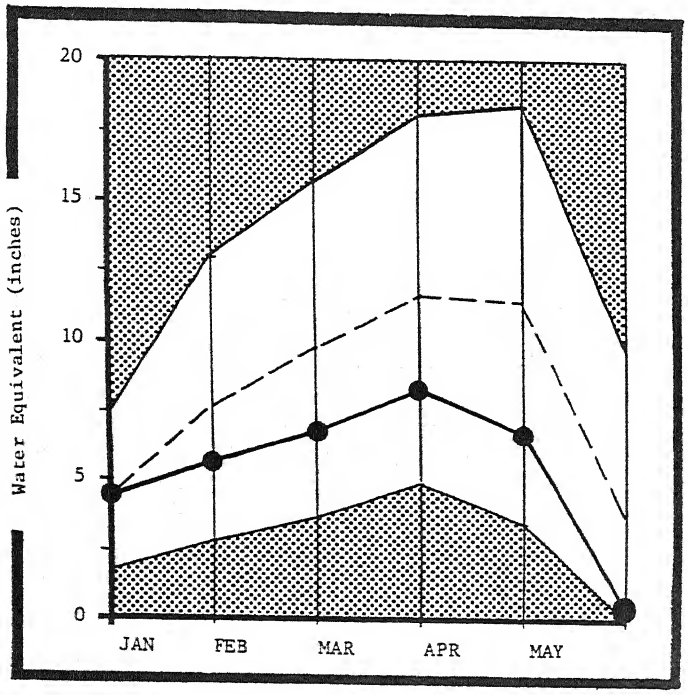
WATER SUPPLY OUTLOOK:

An outlook for 15 to 20 percent below normal streamflows has been sustained by near normal May rainfalls.

Reservoir storage of Jackson is very low due to reconstruction, but Grassy Lake and Palisades are 15 and 60 percent above average respectively.

BIGHORN RIVER BASIN

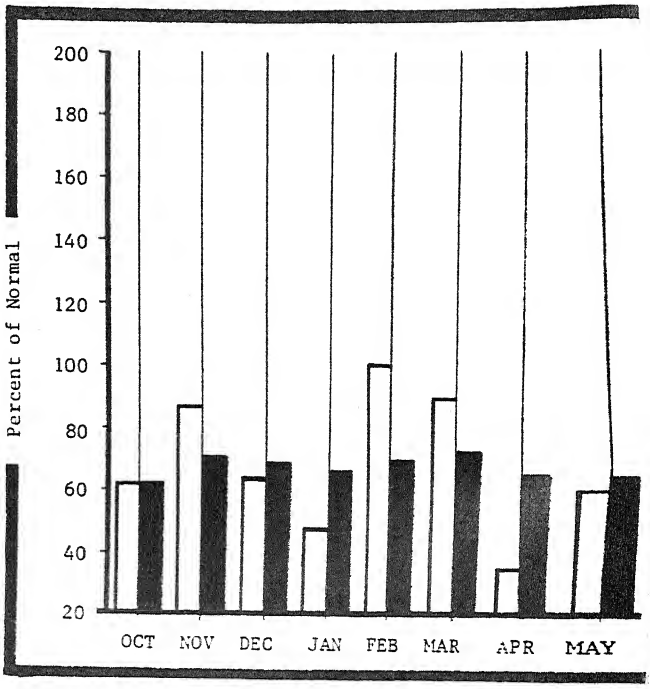
MOUNTAIN SNOWPACK*



*Based on selected stations

Maximum
Minimum
Average
Current

PRECIPITATION*



*Based on selected stations

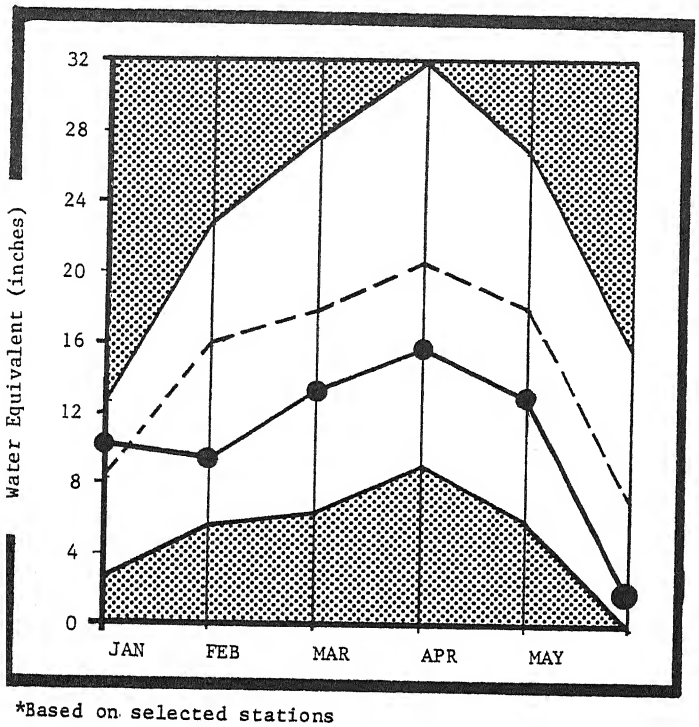
Monthly precipitation
Year to date precipitation

WATER SUPPLY OUTLOOK:

Range conditions, stockwater storage, and availability of streamflow for direct diversion are in poor condition. The dryness of this fall, winter, and spring has provided only two-thirds usual moisture. Streamflow forecasts are similar with shortages aggravated by early peaks and now receding streamflows. Reservoir storage is good, however.

UPPER YELLOWSTONE AND MADISON RIVER BASINS

MOUNTAIN SNOWPACK*



*Based on selected stations

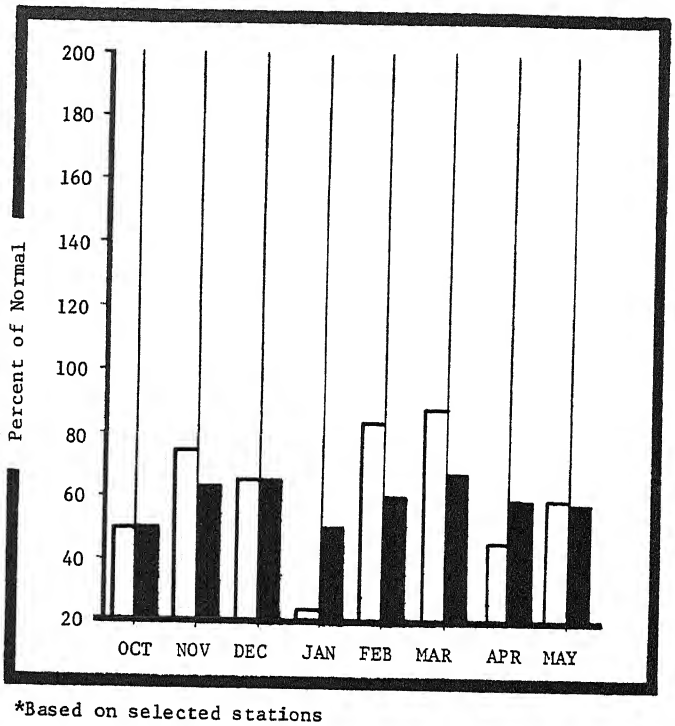
Maximum

Minimum

Average

Current

PRECIPITATION*



*Based on selected stations

Monthly precipitation

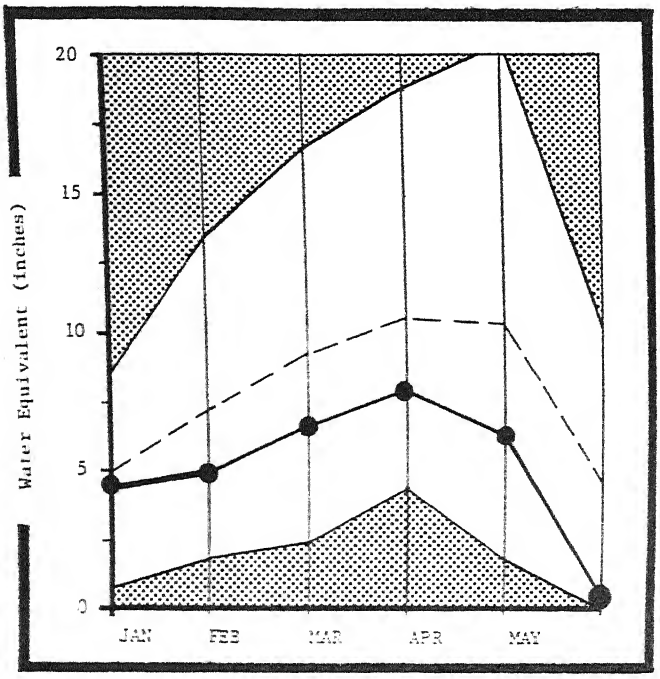
Year to date precipitation

WATER SUPPLY OUTLOOK:

The outlook continues for about 20 percent less than usual streamflows. Dry warm weather has severely reduced high elevation snowpacks.

WIND RIVER BASIN

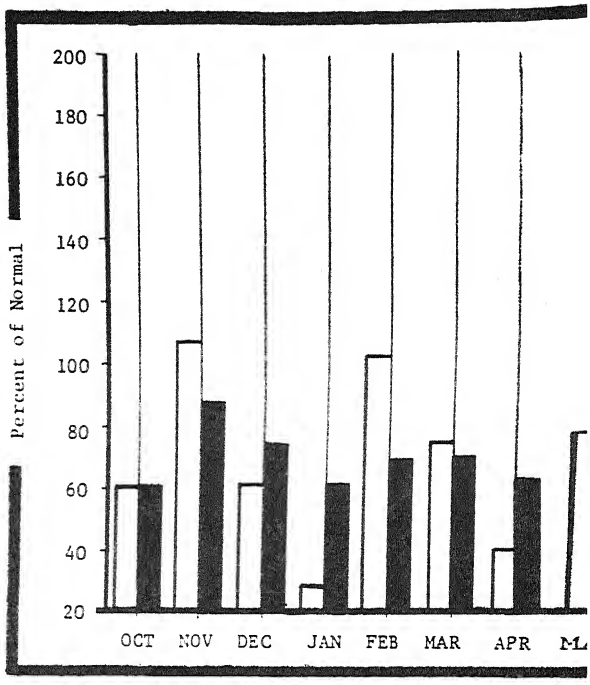
MOUNTAIN SNOWPACK*



*Based on selected stations

Maximum
Minimum
Average
Current

PRECIPITATION*



*Based on selected stations

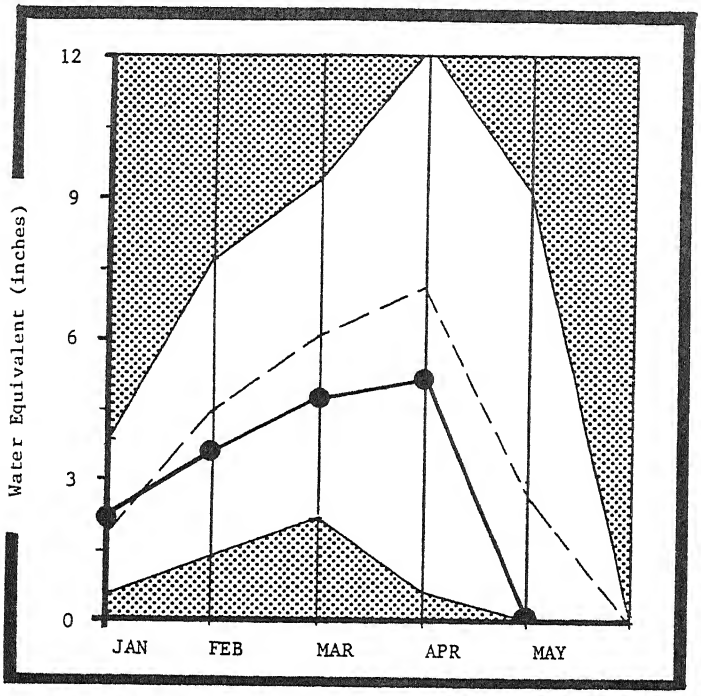
Monthly precipitation
Year to date precipit

WATER SUPPLY OUTLOOK:

Water supplies for those using reservoir water will be good this season with all reservoirs near to above average. Serious shortages may be experienced, however, by those diverting their water supply directly from streamflows which are well below normal and now receding with the peak well past. Range condition and small stockwater reservoirs are also in poor condition.

BELLE FOURCHE AND CHEYENNE RIVER BASINS

MOUNTAIN SNOWPACK*



*Based on selected stations

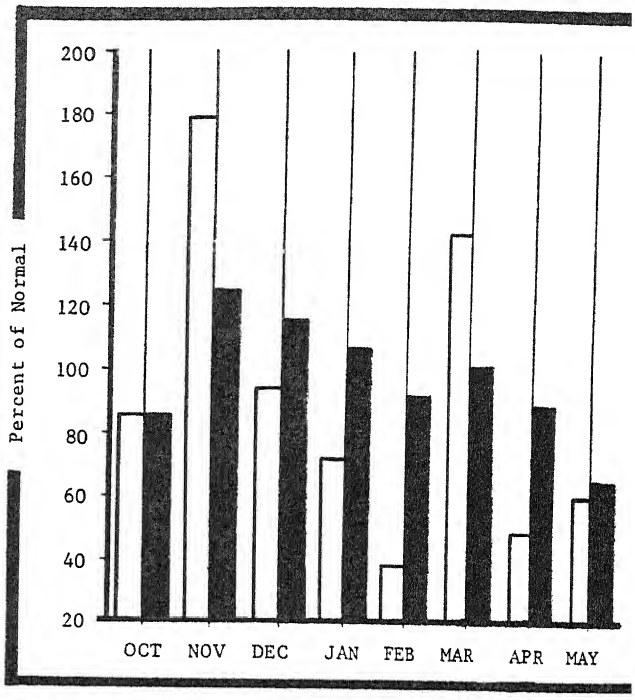
Maximum

Minimum

Average

Current

PRECIPITATION*



*Based on selected stations

Monthly precipitation

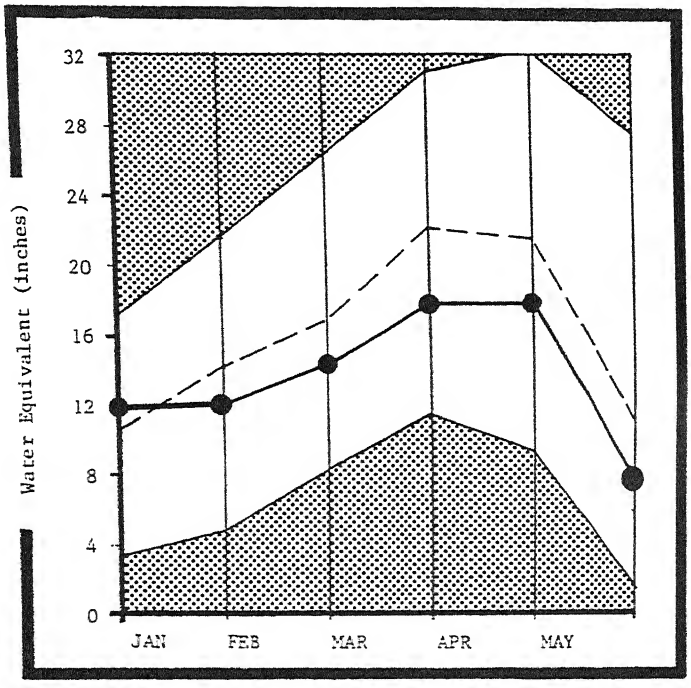
Year to date precipitation

WATER SUPPLY OUTLOOK:

The droughty trend of 1985 continues, rangeland and streamflow conditions are poor. Reservoir storage is near normal except at Keyhole and Angostura, which are 42 and 18 percent below average respectively.

UPPER NORTH PLATTE AND LITTLE SNAKE RIVER BASINS

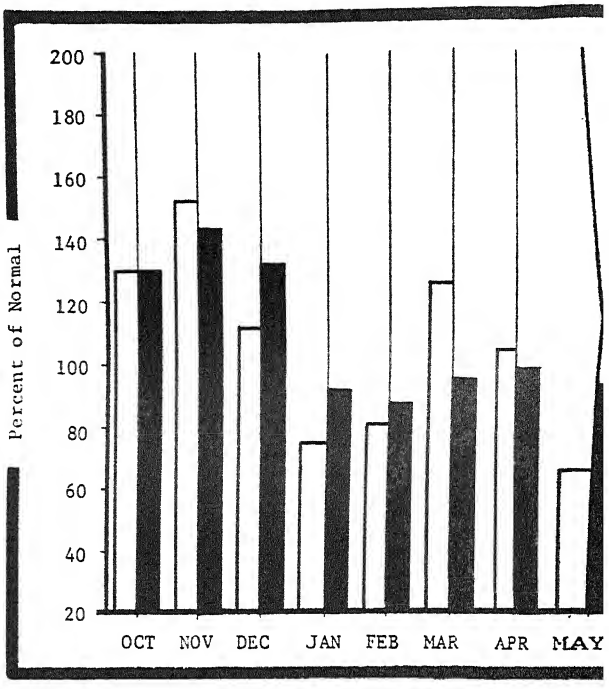
MOUNTAIN SNOWPACK*



*Based on selected stations

Maximum
Minimum
Average
Current

PRECIPITATION*



*Based on selected stations

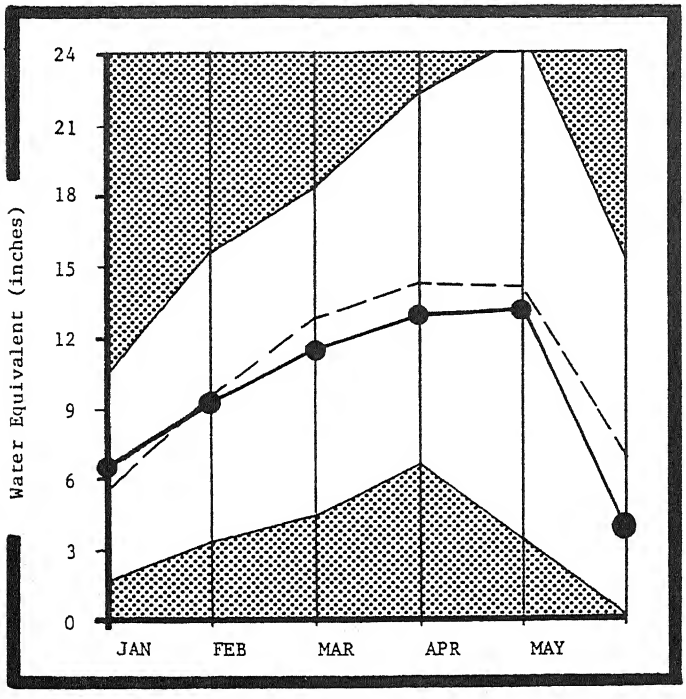
Monthly precipitation
Year to date precipitat

WATER SUPPLY OUTLOOK:

Streamflows have peaked 4 weeks early exceeding April and May average flows, but will still be 10 to 15 percent below normal for the season. Only very high elevation snows remain. Reservoir storage is excellent with Seminoe at 135 percent above usual.

LOWER NORTH PLATTE, SWEETWATER, AND LARAMIE RIVER BASINS

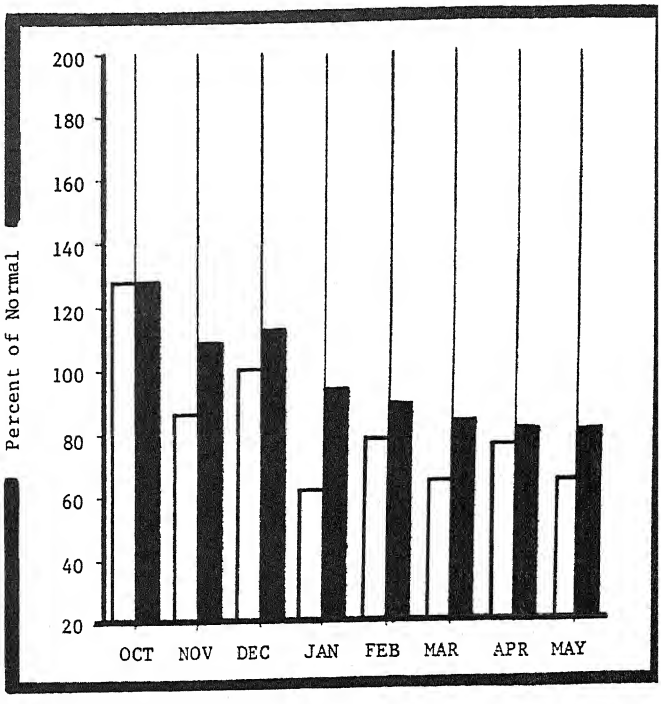
MOUNTAIN SNOWPACK*



*Based on selected stations

Maximum
Average
Minimum
Current

PRECIPITATION*



*Based on selected stations

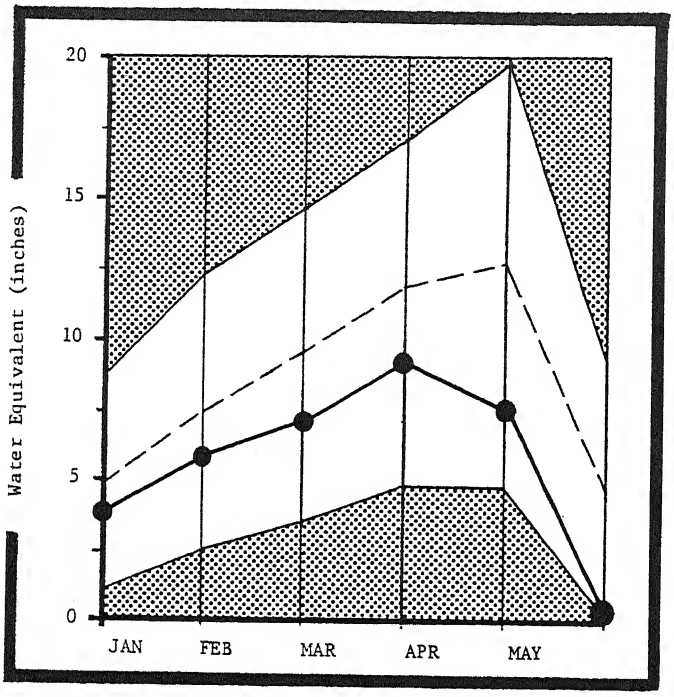
Monthly precipitation
Year to date precipitation

WATER SUPPLY OUTLOOK:

Reservoir stored waters continue to be a bright spot in this basin's water supply outlook. Many small streams, however, have peaked and are now receding, seriously limiting waters available for direct diversion. Snowpack is almost nonexistent on June 1.

POWDER AND TONGUE RIVER BASINS

MOUNTAIN SNOWPACK*



*Based on selected stations

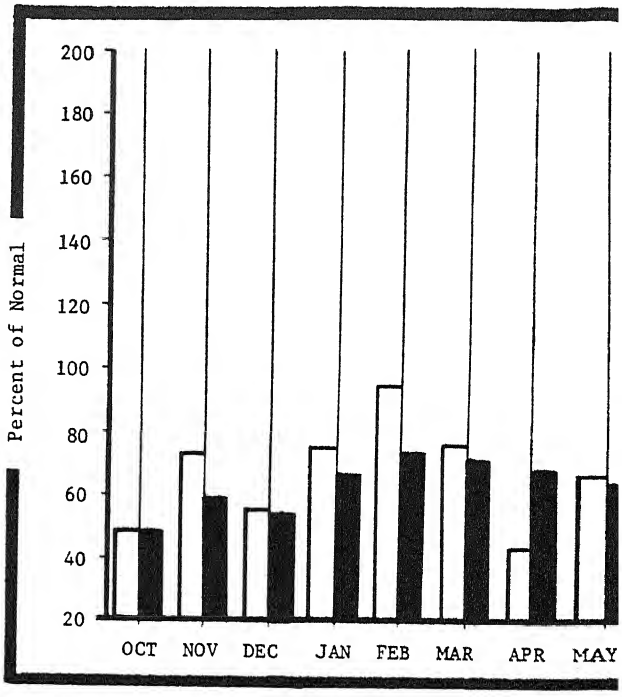
Maximum

Minimum

Average

Current

PRECIPITATION*



*Based on selected stations

Monthly precipitation

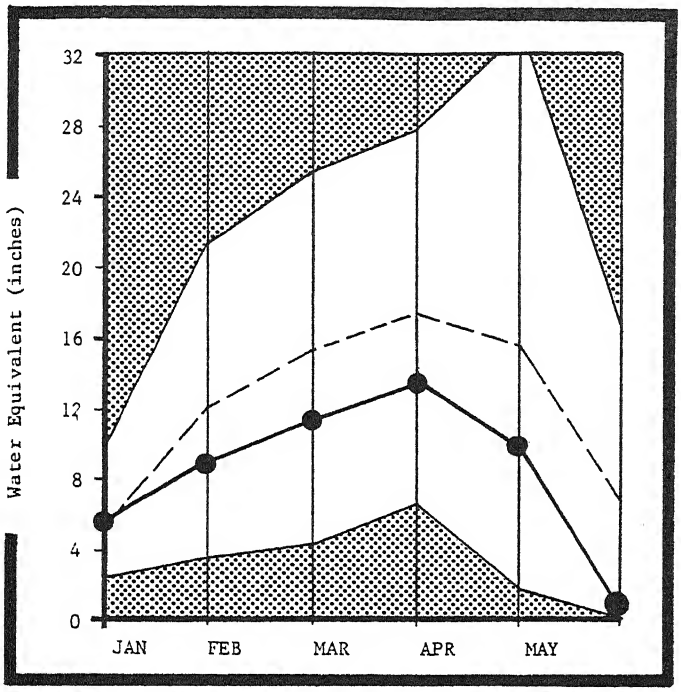
Year to date precipitat

WATER SUPPLY OUTLOOK:

The dry winter and continuing dry warm spring will produce streamflows 30 to 50 percent below normal. Runoff has been early, peaks are now past, and many users of direct diversion water are out of water. The poor water supply condition is also noted in range condition and stockwater supply.

UPPER GREEN RIVER BASIN

MOUNTAIN SNOWPACK*



*Based on selected stations

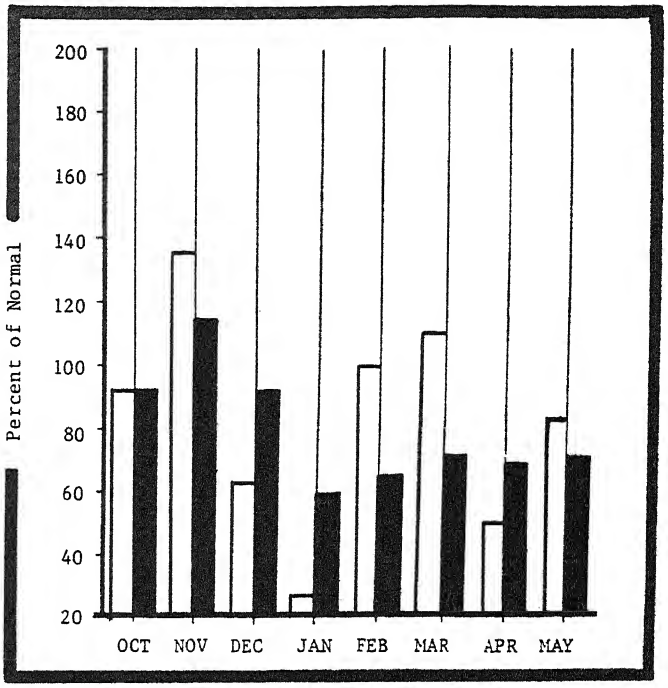
Maximum

Minimum

Average

Current

PRECIPITATION*



*Based on selected stations

Monthly precipitation

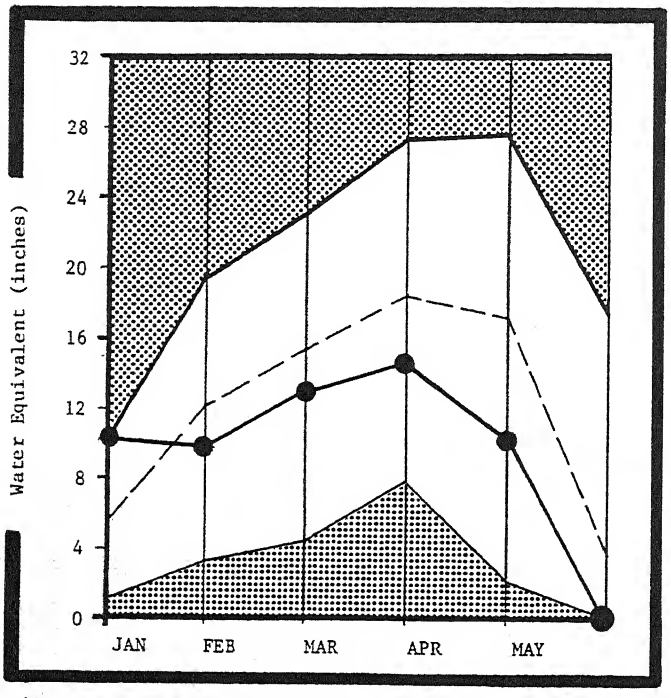
Year to date precipitation

WATER SUPPLY OUTLOOK:

About 20 percent less than usual streamflows are forecasted based upon poor snowpacks and below normal spring rains. Big Sandy Reservoir storage is 30 percent above usual for June 1. Streamflows have peaked 2 to 3 weeks early, shortening the season for direct diversion use.

UPPER BEAR RIVER BASIN

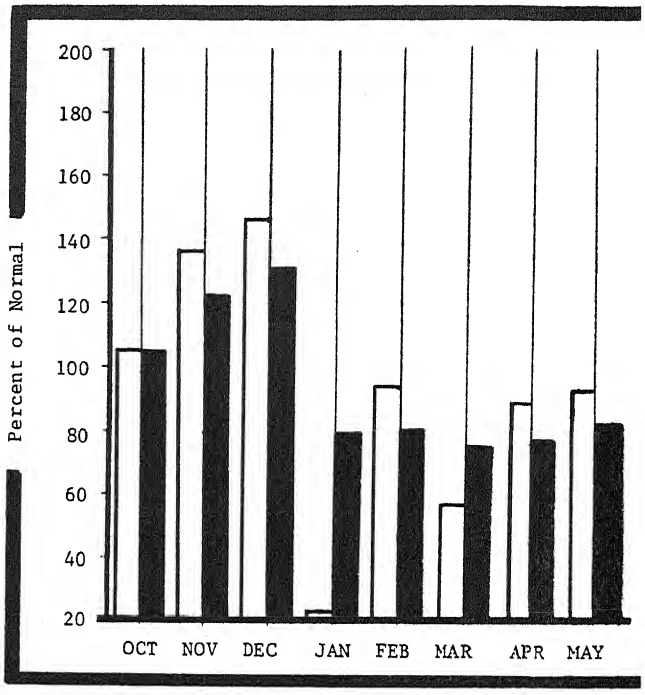
MOUNTAIN SNOWPACK*



*Based on selected stations

Maximum
Minimum
Average
Current

PRECIPITATION*



*Based on selected stations

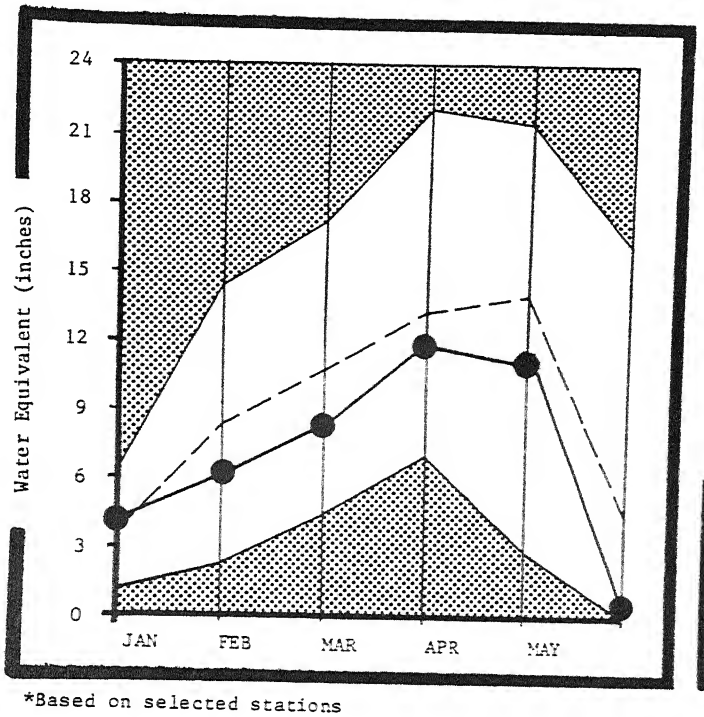
Monthly precipitation
Year to date precipitation

WATER SUPPLY OUTLOOK:

Bear River streamflows are forecast at near normal this season, while the Smiths and Thomas Forks continue at about 25 percent below normal.

LOWER GREEN RIVER BASIN

MOUNTAIN SNOWPACK*



*Based on selected stations

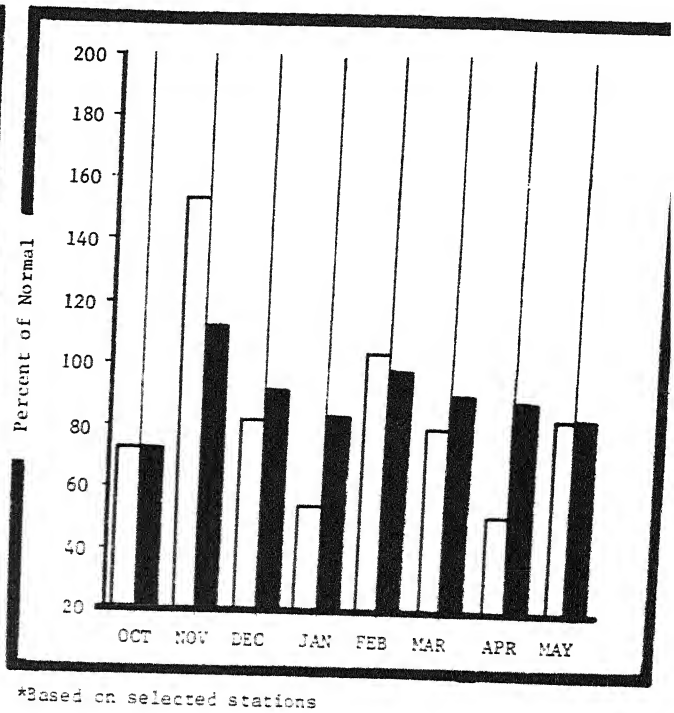
Maximum

Minimum

Average

Current

PRECIPITATION*



*Based on selected stations

Monthly precipitation

Year to date precipitation

WATER SUPPLY OUTLOOK:

Outlook for Uinta snowpack-fed streams into Wyoming remains best in the state at about 30 to 40 percent above normal. The Hams Fork, however, will yield below normal streamflow volume.

BASIN SUMMARY OF SNOW COURSE DATA

JUNE 1985

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-80
WYOMING						
BALD MOUNTAIN	9380	6/01/85	---	3.8E	--	--
BASE CAMP	7030	6/01/85	0	.0	--	--
BASE CAMP SNOTEL	7030	6/01/85	---	.0	.0	--
BEARTOOTH LK. SNOTEL	9280	6/01/85	---	7.1	15.4	--
BEAR TRAP MDWS. AIR	7900	6/01/85	0	.0	--	--
BEAR TRAP MDWS. SNTL	7900	6/01/85	---	.0	.0	--
BIG SANDY OPENING	9080	6/01/85	0	.0	--	--
BIG SANDY OPEN.SNTL	9080	6/01/85	---	.0	--	--
BLACKWATER SNOTEL	9780	6/01/85	---	12.9	21.9	--
BLIND BULL SNOTEL	8650	6/01/85	---	1.0	17.9	--
BONE SPRINGS DIVIDE	9350	6/01/85	0	.0	--	--
BONE SPGS. DIV.SNTL	9350	6/01/85	---	.0	14.8	--
BROOKLYN LAKE	10220	6/01/85	---	3.2E	--	--
BROOKLYN LK. SNOTEL	10220	6/01/85	---	5.0	16.3	--
BURGESS RANGER STA	7880	6/01/85	0	.0	--	--
BURGESS JCT. SNOTEL	7880	6/01/85	---	.0	8.7	--
BURROUGHS CREEK	8750	6/01/85	0	.0	--	--
BURROUGHS CRK SNOTEL	8750	6/01/85	---	.0	.8	--
CANYON SNOTEL	7940	6/01/85	0	.0	.0	--
CANYON (DISC.)	7940	6/01/85	0	.0	.0	--
CASPER MOUNTAIN	7850	5/31/85	0	.0	8.4	6.4
CASPER MTN. SNOTEL	7850	6/01/85	---	.0	--	--
CHRISTINA LK SNOTEL	9980	6/01/85	---	.0	9.0	--
CLOUD PEAK SNOTEL	9850	6/01/85	---	.6	15.1	--
COTTONWOOD LK AM	7600	6/01/85	0	.0	--	--
COTTONWOOD LK SNOTEL	7600	6/01/85	---	.0	7.4	--
COULTER CREEK	7020	6/01/85	0	.0	--	--
COULTER CREEK SNOTEL	7020	6/01/85	---	.0	.0	--
DINWOODY	10160	6/01/85	0	.0	--	--
DINWOODY SNOTEL	10000	6/01/85	---	.0	.0	--
DOME LAKE	8880	6/01/85	0	.0	7.9	--
DOME LAKE SNOTEL	8880	6/01/85	---	.0	--	--
ELKHART PARK G.S.	9400	6/01/85	0	.0	1.3	--
ELKHART PARK SNOTEL	9400	6/01/85	---	.0	--	--
EVENING STAR SNOTEL	9200	6/01/85	---	14.1	--	--
GRASSY LAKE SNOTEL	7270	6/01/85	---	.0	18.5	--
GROS VENTRE SUMMIT	8750	6/01/85	0	.0	--	--
GROS VENTRE SNOTEL	8750	6/01/85	---	.0	.0	--
HANSEN S.M. SNOTEL	8760	6/01/85	---	.0	.0	--
HOBBS PARK	10100	6/01/85	0	.0	--	--

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-80
SUCKER CREEK SNOTEL	8880	6/01/85	---	.0	8.0	--
SYLVAN LAKE SNOTEL	8420	6/01/85	---	.0	15.7	--
TOGWOTEE PASS	9580	6/03/85	30	12.5	25.8	30.0
TOGWOTEE PASS SNOTEL	9580	6/01/85	---	14.3	22.6	--
TOWNSEND CREEK	8700	6/01/85	0	.0	--	--
TOWNSEND CRK SNOTEL	8700	6/01/85	---	.0	.0	--
TROUT CREEK SNOTEL	8400	6/01/85	---	.0	.0	--
TWO OCEAN SNOTEL	9160	6/01/85	---	20.3	26.1	--
WARREN PEAK	6520	6/01/85	0	.0	.0	--
WARREN PEAK SNOTEL	6520	6/01/85	---	.0	--	--
WEBBER SPRING	9250	5/30/85	0	.0	4.9	3.1
WEBBER SPRING SNOTEL	9250	6/01/85	---	.0	--	3.1
WILLOW CRK SNOTEL WY	8450	6/01/85	---	.0	22.8	--
WINDY PEAK SNOTEL	7900	6/01/85	---	.0	.0	--
WOLVERINE	7650	6/01/85	0	.0	--	--
WOLVERINE SNOTEL	7650	6/01/85	---	.0	.0	--
)LORADO						
CAMERON PASS	10300	5/31/85	34	17.6	23.6	24.7
COLUMBINE LODGE	9300	5/31/85	0	.0	.0	2.1
JOE WRIGHT	10000	5/31/85	35	15.6	26.5	23.0
RABBIT EARS	9550	5/31/85	25	12.3	23.2	15.9
PARK VIEW	9200	5/31/85	0	.0	.0	.1
WILLOW CREEK PASS	9500	5/31/85	0	.0	1.3	1.2
AHO						
NTANA						
BLACK BEAR BUTYL	7950	6/01/85	---	14.0	26.7	25.9
FISHER CREEK BUTYL	9100	6/01/85	---	17.0	28.9	34.6
N.E. ENTRANCE BUTYL	7350	6/01/85	---	.0	.0	.0
WEST YELLOWSTONE	6700	5/31/85	0	.0	--	--
WEST YELL'ST BUTYL	6700	5/31/85	---	.0	.0	.0
WHITE MILL BUTYL	8700	6/01/85	---	11.4	20.3	19.8
AH						
BLACK'S FORK	9200	5/29/85	0	.0	.0	1.3
BLACK'S FORK JUNCTN	8930	5/30/85	2	.1	.0	.6
BURT'S-MILLER RANCH	7900	5/30/85	3	.3	.0	.0
HAYDEN FORK	9400	5/30/85	0	.0	.0	4.1
HEWINTA G.S.	9500	5/30/85	2	.3	.0	2.0
HICKERSON PARK	9100	5/29/85	0	.0	.0	.1
MONTE CRISTO R.S.	8960	5/30/85	1	.4	14.9	9.9
SPIRIT LAKE	10300	5/29/85	0	.0	.0	7.3
STEEL CREEK PARK	10100	5/30/85	18	5.8	14.5	11.9
STILLWATER CAMP	8550	5/30/85	1	.1	.0	.2
TRIAL LAKE	9960	5/30/85	18	7.9	17.3	19.7

SNOW COURSE	ELEVATION	DATE	SNOW DEPTH	WATER CONTENT	LAST YEAR	AVERAGE 1961-80
HOBBS PARK SNOTEL	10100	6/01/85	---	.0	6.9	--
INDIAN CREEK SNOTEL	9430	6/01/85	---	.0	20.3	--
IRISH ROCK SNOTEL	9800	6/01/85	---	.0	.8	--
KELLEY RANGER STA.	8180	6/01/85	0	.0	--	--
KELLEY R.S. SNOTEL	8180	6/01/85	---	.0	.4	--
KIRWIN SNOTEL	9550	6/01/85	---	.0	4.4	--
LA PRELE SNOTEL	8380	6/01/85	---	.0	.0	--
LEWIS LAKE DIVIDE	7850	5/31/85	28	13.0	27.2	30.5
LITTLE WARM	9620	6/01/85	0	.0	--	--
LITTLE WARM SNOTEL	9620	6/01/85	---	.0	--	--
LOOMIS PARK	8240	6/01/85	0	.0	--	--
LOOMIS PARK SNOTEL	8240	6/01/85	---	.0	.0	--
LOST CREEK SNOTEL	8080	6/01/85	---	.0	14.8	--
MARQUETTE CREEK	8760	6/01/85	0	.0	--	--
MARQUETTE CREEK SNTL	8760	6/01/85	---	.0	7.1	--
MIDDLE POWDER	7760	6/01/85	0	.0	--	--
MIDDLE POWDER SNOTEL	7760	6/01/85	---	.0	8.3	--
NORTH BARRETT CREEK	9430	5/30/85	5	2.5	22.0	12.0
N.FRENCH CRK SNOTEL	10130	6/01/85	---	14.3	27.7	20.0
NOWOOD CREEK SNOTEL	8600	6/01/85	---	.0	--	--
OLD BATTLE	9920	5/30/85	42	20.4	32.6	23.8
OLD BATTLE SNOTEL	9920	6/01/85	---	21.8	39.1	--
OWL CREEK	8980	6/01/85	0	.0	--	--
OWL CREEK SNOTEL	8980	6/01/85	---	.0	.0	--
PARKERS PEAK SNOTEL	9400	6/01/85	---	5.0	21.2	--
PHILLIPS BENCH	8200	6/01/85	0	.0	--	--
PHILLIPS BENCH SNTL	8200	6/01/85	---	.0	13.0	--
POISON MEADOWS	8500	6/01/85	---	2.1E	14.5	--
POWDER RIVER PASS	9480	6/01/85	0	.0	--	--
POWDER RVR.PASS SNTL	9480	6/01/85	---	.0	.0	--
RENO HILL SNOTEL	8500	6/01/85	---	.0	.0	--
ROCK CREEK	9980	6/01/85	---	18.8E	--	--
SALT RIVER SUMMIT	7700	6/01/85	0	.0	--	--
SALT RIVER SNOTEL	7700	6/01/85	---	.0	1.0	--
SAND LAKE SNOTEL	10090	6/01/85	---	20.2	31.3	--
[illegible]	9580	6/01/85	---	.3E	--	--
	9580	6/01/85	---	2.8	12.8	--
	8060	6/01/85	0	.0	--	--
	8060	6/01/85	---	.0	.0	--
	8440	6/01/85	---	.0	.0	--
	9000	6/01/85	---	.0	11.3	--
	8960	6/01/85	0	.0	--	--
	8950	6/01/85	---	.0	.0	--
	8620	6/01/85	---	.0	--	--
	8880	6/01/85	0	.0	--	--

The Following Organizations Cooperate With The Soil Conservation Service In Snow Survey Work

State

- Conservation Districts of Wyoming
- State Engineer of Wyoming
- Department of Water Resources of Nebraska
- Irrigation Districts of Wyoming
- University of Wyoming
  - Department of Atmospheric Resources
  - Department of Agricultural Engineering

Federal

- U.S. Department of Agriculture
  - Soil Conservation Service
  - Forest Service
- U.S. Department of Commerce
  - NOAA, National Weather Service
- U.S. Department of Interior
  - Bureau of Reclamation
  - Geological Survey
  - National Park Service
  - Bureau of Indian Affairs
  - Bureau of Land Management

Private

- Utah Power and Light Company
- Eden Valley Irrigation District

Other organizations and individuals furnish information for the snow survey reports. Their cooperation is gratefully acknowledged.